

Appl. No. 10/145,578
Reply to Office Action of December 19, 2005
Atty. Dkt. No. NVDA/P000419

IN THE CLAIMS:

The listing of claims below will replace all prior versions and listings of claims in the application. Please cancel claims 5, 9-12, and 16-23 and amend the claims as follows:

Claim 1 (Currently Amended): A method for shaping a shared edge between two N-patches, comprising:

obtaining a first normal at a first shared vertex of the shared edge for one of the two N-patches;

obtaining a second normal at the first shared vertex of the shared edge for another of the two N-patches; [[and]]

computing a cross product for the first normal and the second normal to provide a first tangent, wherein the tangent provides a projection for determining the shared edge; and

computing a modified tangent using at least the first tangent and the first shared vertex.

Claim 2 (Original): The method according to Claim 1, further comprising using the first tangent to shape the shared edge.

Claim 3 (Original): The method according to Claim 1, further comprising:

obtaining a third normal at a second shared vertex of the shared edge;

obtaining a fourth normal at the second shared vertex of the shared edge; and

computing a cross product for the third normal and the fourth normal to provide a second tangent.

Claim 4 (Currently Amended): The method according to Claim [[1]] 3, wherein the second tangent provides another projection for determining the shared edge.

Claim 5 (Canceled)

Claim 6. (Original): The method according to Claim 1, further comprising determining at least one control point.

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Claim 7 (Original): The method according to Claim 6, wherein the at least one control point influences shaping of the shared edge.

Claim 8 (Currently Amended): A method for geometry generation, comprising:

- obtaining a model comprising polygons;
- determining vector normals for the model;
- converting the model to a higher-order form of the model by converting the polygons to respective N-patch versions thereof and adding control points to the model;
- identifying shared edges for the higher-order form of the model;
- determining dot products for respective normal pairs at shared vertices;
- generating tangents for the higher-order form of the model responsive to the shared edges and responsive to the dot products not exceeding the threshold value;
- and
- shaping the shared edges at least partially responsive to at least one of the tangents.

Claims 9-12 (Canceled)

Claim 13 (Currently Amended): The method according to Claim [[12]] 8, further comprising shaping the shared edges partially responsive to at least one of the control points.

Claim 14 (Original): The method according to Claim 8, wherein the higher-order form of the model comprises Bezier patches.

Claim 15 (Currently Amended): A method for tessellation, comprising:

- providing a tessellator;
- providing an N-patch to the tessellator;
- generating N-patches with the tessellator in response to the N-patch;
- identifying for two of the N-patches a shared edge; [[and]]
- ascertaining whether the shared edge should be creased by computing a dot product, the dot product for a first normal of one of the two of the N-patches and a

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second normal of another of the two of the N-patches at a common vertex of the shared edge and comparing a scalar result of the dot product to a threshold value therefore;

responsive to the determination that the shared edge should be creased, taking a cross product of the first normal and the second normal at the common vertex of the shared edge, wherein a tangent vector is generated;

responsive to a determination that the shared edge should be creased, shaping the shared edge at least partially responsive to the tangent vector; and

shaping the shared edge partially responsive to at least one control point of at least one of the two N-patches.

Claims 16-23 (Cancelled)

Claim 24 (New): A method for shaping a shared edge between two N-patches, comprising:

obtaining a first normal at a first shared vertex of the shared edge for one of the two N-patches;

obtaining a second normal at the first shared vertex of the shared edge for another of the two N-patches;

computing a cross product for the first normal and the second normal to provide a first tangent, wherein the tangent provides a projection for determining the shared edge; and

determining at least one control point.

Claim 25 (New): The method according to Claim 24, further comprising using the first tangent to shape the shared edge.

Claim 26 (New): The method according to Claim 24, further comprising:

obtaining a third normal at a second shared vertex of the shared edge;

obtaining a fourth normal at the second shared vertex of the shared edge; and

computing a cross product for the third normal and the fourth normal to provide a second tangent.

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Claim 27 (New): The method according to Claim 26, wherein the second tangent provides another projection for determining the shared edge.

Claim 28 (New): The method according to Claim 27, wherein the at least one control point influences shaping of the shared edge.